

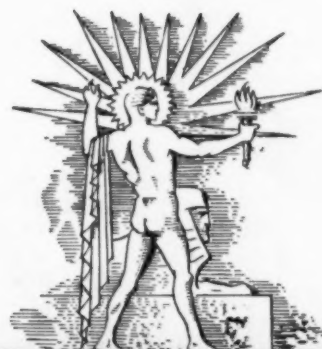
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FALL BOOK NUMBER

# SCIENCE NEWS LETTER

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THE WEEKLY SUMMARY OF CURRENT SCIENCE •



October 21, 1939

Floral Nocturne

See Page 260

A SCIENCE SERVICE PUBLICATION

## Do You Know?

The blue berry of the *Clintonia* fruit is a rare case of pure blue color in nature, minus any purplish tinge.

North America's greatest "duck factory" is the breeding ground region in Canada's western provinces.

Before the present war, Germany got all of the coal for her iron and steel production from the Saar basin.

An Italian coffee expert sought recently to see wild coffee growing in Ethiopia, and eventually found some in the south, in jungle thicket.

The first white men to see American corn were two scouts sent by Columbus into the interior of Cuba, during the famous visit of 1492.

On advice of the U. S. Weather Bureau, the Wright brothers chose Kill Devil Hill region for their famous first successful airplane flight.

A British dentist blames extraction of 2,500,000 temporary teeth and 500,000 permanent teeth of British children on widespread lack of dental care.

To keep close check on America's production, consumption, and stocks of strategic minerals, the U. S. Bureau of Mines has started monthly canvasses.

German agriculturists are trying to crowd several harvests into the year, and in greenhouse experiments four crops of vegetables in a year have been raised.

## NEW BOOKS ON SCIENCE—FALL 1939

*This issue contains Science Service's semi-annual comprehensive bibliography of current books in various scientific fields. It lists those published or promised during the latter half of this year. Books are intelligent companions for recreation or useful tools for research. Books like those in this list will make exceptional Christmas gifts. It is not too early to begin to think about your gift problems and SCIENCE NEWS LETTER will aid you with special suggestions if you wish them. SCIENCE NEWS LETTER will obtain for you any American book or magazine in print. Send check or money order to cover regular retail price (\$5 if price is unknown, change to be remitted) and we shall pay postage in the United States. When publications are free, send 10c for handling. Address: Book Department, SCIENCE NEWS LETTER, 2101 Constitution Ave., Washington, D. C.*

In 12 states there are laws against driving too slowly.

Oxford University geologists are mapping the Central Andes in Peru.

Trains of motor trucks hauling ten trailers are used on Italy's new express roads.

In 6,000 years, 24,000 generations of mice are born, but only 200 generations of men.

A beaver weighs about a pound to the inch of length, and the average beaver is 40 to 50 inches long.

An Oklahoma oil well has been drilled to 14,479 feet, and may go deeper than California's record-breaking 15,004-foot well.

The United States is almost entirely dependent on India for high-grade mica used in radio transmitter condensers and airplane spark plugs.

Growing tung trees is being tried in Oklahoma.

The national record for deer antlers is a spread of a little over 30 inches.

Winds in the Antarctic travel up to 60 miles an hour on land, and faster at sea.

The United States in 1938 used about six and one-half pounds of rayon to every pound of silk.

An expert at spearing big sea game says that an octopus, even when not fully developed, is far stronger than a man.

Japan's commercial fishermen catch the most fish by weight, of any country; but United States fishery products outrank Japanese in value.

Nearly half the wheat acreage in the United States was harvested last year by combine machines that reap and thresh the grain in one operation.

## SCIENCE NEWS LETTER

Vol. 36 OCTOBER 21, 1939 No. 17

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 2101 Constitution Avenue, Washington, D. C. Edited by WATSON DAVIS.

Subscriptions—\$5.00 a year; two years \$7.00; 15 cents a copy. Ten or more copies to same address, 5 cents a copy. Back numbers more than six months old, 25 cents.

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Cable address: Scienserve, Washington.

Entered as second class matter at the post-

office at Washington, D. C., under the Act of March 3, 1879. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to Periodical Literature, Abridged Guide, and in the Engineering Index.

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## MEDICINE

# Find First Line Of Defense Against Colds Is in Nose

**Thin Moist Coating Is Barrier to Invaders; Dryness For Even Half an Hour Allows Colds to Gain a Hold**

**W**HEN you are under emotional or physical strain and your nose and throat feel dry, your first line of defense against troublesome and dangerous colds is being smashed, even though you have not sneezed your first "kerchoo."

This was revealed by Dr. J. Kent Leasure, of Indianapolis, to the American Academy of Ophthalmology and Otolaryngology meeting in Chicago.

The thin, moist coating of mucus in the nose is the body's barrier to the cold invaders. Let the glands secreting this mucus be put out of action for even as short a time as a half hour, the defense is penetrated. The cold-causing organisms can get into the human system and produce their unpleasant and dangerous effects.

Nerve control is the secret of cold prevention. When one set of nerves gets the upper hand over another set of nerves, production of the mucous coating that holds back invading cold organisms is stopped. The second set of nerves stimulates mucus production. The antagonistic set of nerves does not, and these are the nerves that go into action in emergencies such as shock, sudden changes in temperature and fatigue.

This seems to explain why people get colds from sitting in a draught, getting chilled or overheated, or staying up too late at night after a hard day of work.

*Science News Letter, October 21, 1939*

## Rare Eye-Beat Condition

**A** RARE kind of eye trouble, in which the eye protrudes from its socket and beats or throbs in time with the heart beat, was reported by Drs. S. J. Meyer and H. Saul Sugar, of Chicago.

Skull fractures from automobile accident injuries or other hard blows on the temple may cause the condition, but it is most often due to rupture of the carotid artery, the big artery running up the side of the neck, at the place where it passes through the large venous channel behind the eye.

Besides the severe deformity of the eye, the patient hears the disagreeable

noise of the blood rushing from the artery into the vein. The physician can hear this by listening through his stethoscope applied at the temple, and a whirring sensation is felt through the eyelid.

For relief, it may be necessary to tie the internal carotid artery.

*Science News Letter, October 21, 1939*

## Vitamins for Eye Trouble

**D**IABETIC patients whose vision has been impaired by bleeding into the retina of the eye have been helped by large doses of vitamins B and C, Dr. Jonas S. Friedenwald, of the Johns Hopkins University and Hospital, reported.

In these patients the tiny veins and arteries of the retina have very fragile walls and consequently bleed easily. Ordinarily, vitamin C, the scurvy-preventing vitamin of citrus fruits and tomatoes, makes these fragile blood vessel walls sturdier, thus controlling the bleeding tendency. Tendency to bleeding from tiny blood vessels because of deficiency of vitamin C is one characteristic of scurvy itself.

Diabetic patients, however, apparently do not always utilize vitamin C normally, so even when given large doses of it, their eye condition does not improve. But when vitamin B, the vitamin found abundantly in yeast and liver, is given with vitamin C, the resistance of the small blood vessels in the eyes of diabetics is restored to normal, Dr. Friedenwald found. He reported "marked improvement" in the eye condition of a small group of diabetic patients who were given the double vitamin treatment.

Vitamin B is made up of a number of different vitamins which scientists have recently been separating. Which part of the B complex is responsible for the improvement is not known yet.

*Science News Letter, October 21, 1939*



**LUNAR LANDSCAPE IN MINIATURE**

Looking almost like a model of the surface of the moon, the famed "paint pots" of Yellowstone National Park always attract their share of fascinated attention from tourists. They are more like what the moon may have been a billion years ago, however, for they are still alive and actively changing, as hot steam constantly works up from underneath. This photograph was made and copyrighted by J. E. Haynes.



## Vitamins for Syphilis

**V**ITAMINS, or at least a diet with plenty of vitamins to build up the patient's general health, are a necessary eyesight-saving addition to treatment of syphilis of the brain and nervous system, it appears from the report of Dr. William M. Muncy of Providence, R. I.

High degrees of artificial fever plus powerful arsenical drugs are used in treating this kind of syphilis, but the combined treatment was found to cause inflammation of the optic nerve in a number of patients who had no previous eye trouble.

Vitamin deficiency was believed responsible. Dietary building-up restored to normal the vision of a number of these patients, after which they were able to stand repeated doses of the necessary arsenical treatment for the syphilitic condition without further symptoms of visual disorder.

*Science News Letter, October 21, 1939*

## ● RADIO

Dr. Ira Gabrielson, chief of the U. S. Bureau of Biological Survey, will be the guest scientist on "Adventures in Science" with Watson Davis, director of Science Service, over the coast to coast network of the Columbia Broadcasting System, Monday, October 30, 4:30 p.m., EST, 3:30 CST, 2:30 MST, 1:30 PST. Listen in on your local station. Listen in each Monday.

## AERONAUTICS

# Giant Propellers Being Made From Wood And Plastics

**T**HE world's largest propellers for airplanes, designed for the super-giants of the air, are now being made at the Riverdale, Md., laboratories of the Engineering and Research Corporation, near Washington.

Unique are these newest blades for they are of composite structure and contain light wood, hard wood, plastics and metal.

Fred E. Weick, chief engineer of the E. & R. Corp., described the new propellers at the meeting of the Washington Section of the Society of Automotive Engineers.

The largest blades yet made by the composite process measure 17.5 feet from tip to tip but engineers see no size limitation to the method. The large propellers of the Pan American "clippers," now flying the Atlantic, measure 14 feet.

The new composite blades are easily produced, are 33% lighter than comparable metal propellers, are strong and have low cost, said Mr. Weick.

The blades consist of a core of lami-

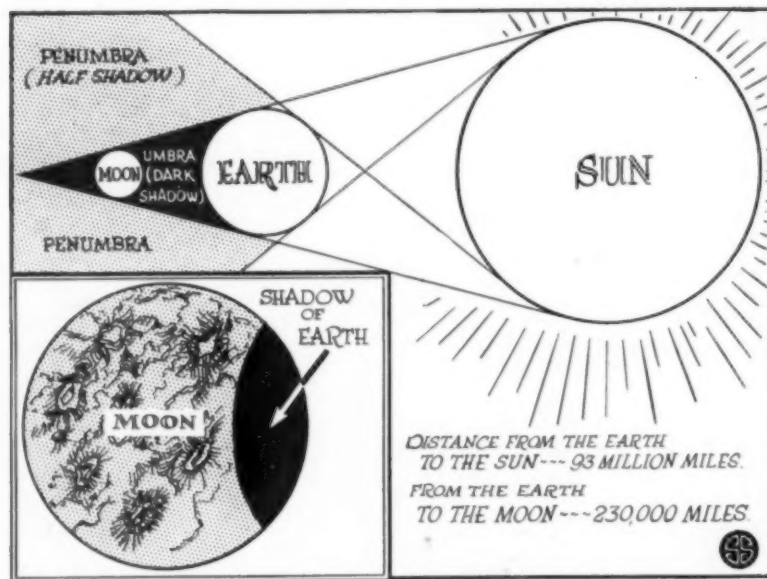
nated light wood which merges into a root of impregnated and compressed hard wood. This, in turn, is threaded into a controllable pitch propeller hub. The whole blade is covered with a heavy coating of reinforced plastic and the leading edge is protected by a flush strip of metal.

As aeronautical engineers have sought to get greater and greater power for airplanes they have been forced to go to larger propellers, for the greater the power the greater must be propeller diameter to retain equal efficiencies.

While much progress has been made in speeding up engines so that they turn over more rapidly, there is a limit in this direction, for the propeller tip must not move at speeds comparable with those of sound, about 740 miles per hour.

Interest in lighter propellers comes because as the size of a propeller increases its weight goes up faster in proportion than does the power it will deliver. This gives a light but strong propeller a sizable edge in utility.

*Science News Letter, October 21, 1939*



**EARTH'S SHADOW ON MOON**

An almost-total eclipse of the moon will greet Americans and Canadians on the night of Oct. 27-28. Lunar eclipses occur only when the moon is full, for only then is the moon on the opposite side of the earth from the sun, and thus in position to pass through its parent planet's shadow. The sun is approximately 400 times as far from the earth as the moon is from the earth. The moon is farthest from the earth this month on Oct. 22, a matter of 251,600 miles.

## BOTANY

# Night-Blooming Cereus Opening Is an "Event"

See Front Cover

**Q**UEEN of the Night, is one romantic but appropriate name that has been bestowed upon the night-blooming cereus, that miraculous cactus with snaky stems that look almost like dead sticks, and flowers that seem to be more of heaven than of earth.

One night only does the flower of the night-blooming cereus last. It opens after dark, so rapidly that the movement of its sepals and petals can actually be observed by our impatient human eyes, while the mass of stamens at its heart keep up a constant trembling motion, almost as if it were animal rather than plant. And the expectant air grows heavy with rich perfume.

Next morning, the flower is collapsed, withered, dead. The Queen of the Night is glorious, but her reign is very brief.

*Science News Letter, October 21, 1939*

The only wild monkeys in Europe live in caves on the Rock of Gibraltar.

# NEW BOOKS ON SCIENCE

Science News Letter presents a comprehensive list of scientific books published or to be published between July 1 and December 31, 1939. All information is believed to be correct but is not guaranteed. Prices are listed where known. Prices marked \* are tentative.

## Aeronautics

- ABC OF AVIATION, Rev. and enl.—V. W. Pagé—*Henley*, \$2.50.  
AERONAUTICAL AND RADIO LAW—NOTES AND PAPERS—Howard S. LeRoy—*Tel-Aero-Lex Pubs.*, \$3.  
AERONAUTICAL DICTIONARY AND REFERENCE LIBRARY—Randolph Hartley, Jr.—*DeVoss*, \$5.  
AIR WAR—W. O'D. Pierce—*Modern Age*, 50c.  
AIRCRAFT BLUEPRINT READING—H. V. Almen and Ralph K. Mead—*Pitman*, \$1\*.  
AIRCRAFT DESIGN: Vol. I, Aerodynamics; Vol. II, Aerostructures—C. H. Latimer-Needham—*Chem. Pub.*, Vol. I, \$6, Vol. II, \$6.50.  
FLYING IS FUN—Wolfgang Langewiesche—*Harcourt*, \$2.50.  
FROM CRATE TO CLIPPER, WITH CAPTAIN MUSICK, PIONEER PILOT—William Stephen Grooch—*Longmans*, \$2.  
HEROES OF THE AIR, Rev.—Chelsea Fraser—*Crowell*, \$2.50.  
HOW TO BE AN AVIATOR—Dick Merrill and George Daws—*McBride*, \$2.  
HOW TO READ AIRCRAFT BLUEPRINTS—Albert A. Owens and Ben F. Slingluff—*Winston*, \$3.  
SOARING WINGS: A BIOGRAPHY OF AMELIA EARHART—George Palmer Putnam—*Harcourt*, \$2.50.  
THE STORY OF FLYING—Archibald Black—*Whittlesey*, \$2.75.  
WEATHER GUIDE FOR AIR PILOTS—Elbert Lee Eaton—*Ronald Press*, \$2.

## Archaeology and Anthropology

- THE AMERICAN INDIAN—Sue Northey—*M. Bradley, Springfield, Mass.*, \$2.  
ANTHROPOLOGY AND RELIGION—Peter H. Buck—*Yale*, \$1.50.  
THE APINAYE—Curt Nimuendajú—*Catholic U.*, \$2.50.  
AN ARCHAEOLOGICAL SURVEY OF NORTHWESTERN ARIZONA—Harold S. Colton—*Northern Ariz. Soc. of Sci. & Art*, 80c.  
ARCHAEOLOGY OF SANTA MARTA COLOMBIA, THE TAIRONA CULTURE, Part II, Section 2, Objects of Pottery—I. Alden Mason—*Field Mus.*, \$2.50.  
THE ATHENIAN ARCHON LIST IN THE LIGHT OF RECENT DISCOVERIES—Wm. H. Dinsmoor—*Columbia*, \$4.50.  
BURIED EMPIRES—Patrick Carleton—*Dutton*, \$3.  
COMPOSITION OF ANCIENT GREEK BRONZE COINS—E. R. Caley—*Amer. Philosophical Soc.*  
CULTURAL AND NATURAL AREAS OF NATIVE NORTH AMERICA—A. L. Kroeber—*U. Calif.*, \$3.50.  
CULTURE CONTACTS ON THE KANSU-TIBETAN BORDER—Robert B. Ekvall—*U. Chicago*, \$1.50.  
THE CULTURE HISTORICAL METHOD OF ETHNOLOGY—Wilhelm Schmidt—*Fortuny's*, \$5.  
EARLY FIRE-MAKING METHODS AND DEVICES—Warren N. Watson—*Pub. by author*, 608 Woodward Bldg., Washington, D. C., paper \$1, cloth \$1.50.

- EARLY POTTERY OF THE JEBELEH REGION—Ann Hoskin Ehrich—*Amer. Philosophical Soc.*  
ETHNOBOTANY OF THE HOPI—Alfred F. Whiting—*Northern Ariz. Soc. of Science and Art*, cloth \$2.25, paper \$2.  
ETRUSCAN PERUGIA—Chandler Shaw—*Johns Hopkins*, \$2.75.  
THE EYAK INDIANS OF THE COPPER RIVER DELTA, ALASKA—Kaj Birket-Smith and Fredrica de Laguna—*U. Penn.*, \$6.  
GIMILSIN TEMPLE AND THE TEMPLE OF THE RULERS AT TELL ASMAR—Henri Frankfort and others—*U. Chicago*, \$12.  
HANDBOOK OF AMERICAN INDIAN LANGUAGES—Franz Boas, ed.—*Augustin*, \$5.  
INDIAN ARTS IN NORTH AMERICA—George C. Vaillant—*Harper*, \$5.  
INDIANS OF THE AMERICAS—Edwin R. Embree—*Houghton*, \$2.75.  
THE LIFE OF GREECE—Will Durant—*Simon & Schuster*, \$3.95.  
MANKIND IN THE MAKING, An Introduction to Anthropology and Archaeology—M. Cathcart Borer—*Warne*, \$1.50.  
MEGIDDO IVORIES—Gordon Loud—*U. Chicago*, \$15.  
MODIFIED BASKET MAKER SITES, ACKMEN-LOWRY AREA, SOUTHWESTERN COLORADO, 1938—Paul S. Martin—*Field Mus.*, \$3.  
MYTHS AND LEGENDS OF THE LIPSON APACHE—Morris E. Opler—*Augustin*, \$3.50.  
NAVAJO MEDICINE MAN—Gladys A. Reichard—*Augustin*, \$30.  
NOTES OF THE HUNTING ECONOMY OF THE ABITIBI INDIANS—William H. Jenkins—*Catholic U.*, 60c.  
THE PASSING OF THE ABORIGINES—Daisy Bates—*Putnam's*, \$3.  
PENOBSCOT MAN: THE LIFE HISTORY OF A FOREST TRIBE IN MAINE—Frank G. Speck—*U. Penn.*, \$4.  
A PILLARED HALL FROM A TEMPLE AT MADURA, INDIA, IN THE PHILADELPHIA MUSEUM OF ART—W. Norman Brown—*U. Penn.*, \$2.  
PREHISTORIC CULTURE UNITS AND THEIR RELATIONSHIPS IN NORTHERN ARIZONA—Harold S. Colton—*Northern Ariz. Soc. of Sci. & Art*, \$1.75.  
PREHISTORIC MACEDONIA—W. A. Heurtley—*Cambridge (Macmillan)*, \$18.  
THE PREHISTORY OF UGANDA PROTECTORATE—T. P. O'Brien—*Cambridge (Macmillan)*, \$7.50\*.  
THE PULSE OF THE PUEBLO—Julia M. Seton—*Seton Village Press*, \$2.  
PUYALLUP-NISQUALLY—Marian W. Smith—*Augustin*, \$5.  
RACE, LANGUAGE AND CULTURE—Franz Boas—*Macmillan*, \$5\*.  
RACE RELATIONS AND THE RACE PROBLEM—Edgar T. Thompson, ed.—*Duke*, \$3.50.  
RELIGION IN PRIMITIVE SOCIETY—W. D. Wallis—*Crofts*, \$5.  
SOCIAL ORGANIZATION OF THE PAPAGO INDIANS—Ruth M. Underhill—*Augustin*, \$3.50.  
THE STONE AGE OF MOUNT CARMEL, Vol. II—T. D. McCown and Sir Arthur Keith—*Oxford*, \$20.

- STYLE TRENDS OF PUEBLO POTTERY IN THE RIO GRANDE AND LITTLE COLORADO CULTURAL AREAS FROM THE SIXTEENTH TO THE NINETEENTH CENTURY—H. P. Mera—*Lab. of Anthropology, Santa Fe*, \$8.  
SUYE MURA: A JAPANESE VILLAGE—John F. Embree—*U. Chicago*, \$3.  
TABOO—R. A. Radcliffe-Brown—*Cambridge (Macmillan)*, 90c.  
TALES OF THE WHITE MOUNTAIN APACHE—Grenville Goodwin—*Augustin*, \$3.50.  
TWILIGHT OF MAN—Earnest A. Hooton—*Putnam*, \$3.  
UNDER YOUR FEET—Blanche Busey King—*Dodd*, \$2.50.

## Astronomy

- THE GLASS GIANT OF PALOMAR—David O. Woodbury—*Dodd*, \$3.  
THE MASSES OF THE STARS—Henry Norris Russell and Charlotte E. Moore—*U. Chicago*, \$3.50.  
THREE COPERNICAN TREATISES—Edward Rosen, ed.—*Columbia*, \$3.

## Biology

- ADVANCES AND APPLICATIONS OF MATHEMATICAL BIOLOGY—Nicolas Rashevsky—*U. Chicago*, \$2.50\*.

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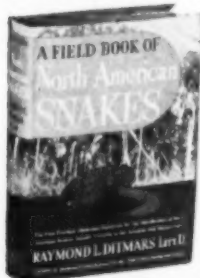


FLYING FORTRESS

Pride of the Army is this giant bomber photographed by the U. S. Army Air Corps.

ANATOMY OF DOMESTIC ANIMALS—Atlas and Dissection Guide—H. L. Foust—*Collegiate*, \$1.75.  
 BASIC BIOLOGY—Cyril E. Abbott—*Burgess*, \$2.  
 BIO-ECOLOGY—Frederic E. Clements and Victor E. Shelford—*Wiley*, \$4.50.  
 BIOLOGY—Brother H. Charles, F.S.C.—*Bruce, Milwaukee*, \$1.72.  
 DARWIN—Julian Huxley—*Longmans*, \$1.  
 FUNDAMENTALS OF BIOLOGY, ANIMAL AND PLANT—William Carl Beaver—*Mosby*, \$4.50.  
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 LABORATORY MANUAL FOR GENERAL BACTERIOLOGY—Peltier, Georgi and Lindgren—*Wiley*, \$2.  
 THE LITTORAL FAUNA OF GREAT BRITAIN—N. B. Eales—*Cambridge (Macmillan)*, \$3.50\*.  
 LIVING THINGS, HOW TO KNOW THEM—H. E. Jaques—*Author*, cloth, \$1.80; spiral binding, \$1.  
 MAN AGAINST MICROBE—Joseph W. Bigger—*Macmillan*, \$2.50.  
 MICROBIOLOGY OF WATER AND SEWAGE FOR ENGINEERING STUDENTS—P. L. Gainey—*Burgess*, \$3.  
 OSMOTIC REGULATION IN AQUATIC ANIMALS—August Krogh—*Cambridge (Macmillan)*, \$4.  
 PRACTICAL MICROBIOLOGY, 5th ed. of "Bacteriology for Nurses"—M. A. Smeeton—*Macmillan*, \$2.75.  
 PROBLEMS OF LAKE BIOLOGY—F. F. Moulton, ed.—*Science Press*.  
 RISE OF EMBRYOLOGY—Arthur William Meyer—*Stanford*, \$6.  
 SEXUAL DISORDERS IN THE MALE—Walker and Strauss—*Williams & Wilkins*, \$3.  
 A STORY OUTLINE OF EVOLUTION—Charles W. Grimes—*Humphries*, \$2.  
 STUDY GUIDE FOR BIOLOGY—Blanche McAvoy—*Burgess*, \$2.  
 TEXTBOOK OF MICROBIOLOGY, 2d ed. of "Textbook of Bacteriology"—Kenneth L. Burdon—*Macmillan*, \$2.75.  
 YOU AND HEREDITY—Amram Scheinfeld—*Stokes*, \$3.

### Botany and Agriculture

AGRICULTURE IN MODERN LIFE—O. E. Baker, Ralph Borsodi and M. L. Wilson—*Harper*, \$3.50.

AGRICULTURE IN THE 20TH CENTURY—Essays presented to Sir Daniel Hall—*Oxford U.*, \$5.  
 ALPINE FLOWERS—Carl Schroeter—*Oxford U.*, \$2.75.  
 AMERICAN HUSBANDRY—Harry J. Carman, ed.—*Columbia*, \$5.  
 AMERICA'S GARDEN BOOK—Louise and James Bush-Brown—*Scribner*, \$3.50.  
 AMONG THE DANISH FARMERS—E. J. Perry—*Interstate*, \$1.60.  
 APPLIED SILVICULTURE IN THE UNITED STATES—Westveld—*Wiley*, \$5.  
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 CAROLINA GARDENS—E. T. H. Shaffer—*U. N. Car.*, \$3.50.  
 COMPLETE GUIDE TO SOILLESS GARDENING—William Gericke—*Prentice-Hall*, \$2.75.  
 DAIRY CATTLE AND MILK PRODUCTION, 3d ed.—Clarence H. Eckles—*Macmillan*, \$3.60.  
 DESERT WILD FLOWERS—Edmund C. Jaeger—*Stanford*, \$3.50.  
 EARTH'S GREEN MANTLE—Sydney Mangham—*Macmillan*, \$3.50.  
 EVOLUTION OF LAND PLANTS—Douglas H. Campbell—*Stanford*, \$6.50.  
 FIELD PLOT TECHNIQUE—Warren H. Leonard and Andrew Clark—*Burgess*.  
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 THE FOREST MANAGER—Karl Dannecker—*Amer. Forestry Assn.*, \$2.  
 FORESTRY AND LUMBERING—Josephine Perry and Celeste Slauson—*Longmans*, \$1.50.  
 GROWING PLANTS IN NUTRIENT SOLUTIONS—W. I. Turner and V. M. Henry—*Wiley*.  
 HERBS FOR THE KITCHEN—Irma G. Mazza—*Little*, \$2.  
 HOME GARDENING ENCYCLOPEDIA—Walter Brett—*Chem. Pub.*, \$2.50.  
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*Science News Letter*, October 21, 1939

### BIOLOGY

#### Useful Microbes

• "You probably know that many of the diseases from which we suffer are due to the invasion of the body by microbes. You may, in consequence, look on microbes only as harbingers of disease and death and wish that this world of ours might be freed from such noxious creatures. But do you know that many of the useful and pleasant things with which we are surrounded are the result of microbial action, and that microbes are as essential for our existence as are the air we breathe and the water we drink?"—Joseph W. Bigger in MAN AGAINST MICROBE (*Macmillan*).

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### BIOLOGY

#### Cycles

• "The question of animal cycles has been a subject of interest for more than a half-century, though the locust plague, as the most serious expression, has been a matter of concern for hundreds of years. . . .

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"It is now generally recognized by students of the subject that the sunspot cycle is reflected in cycles of magnetic phenomena, of pressure, temperature, and rainfall, but that these may differ for major regions of the globe at any particular time."—Frederic E. Clements and Victor E. Shelford in BIO-ECOLOGY (*Wiley*).

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## PUBLIC HEALTH

### Vigilance Demanded

• "Enormous new problems are presented by the better and faster transport that has been developed. The world no longer consists of a series of isolated little islands; more and more it is becoming a homogeneous mass. We have seen how a fast plane can carry malaria across an ocean and there is the omnipresent danger that yellow fever will slip into India on the air line now connecting the African West Coast with that country. Conditions are ready-made for an epidemic of fearful proportions.

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## SEISMOLOGY

# Find New Earthquake Wave May Aid Detection of Enemy

**A** NEW type of earthquake wave, which is expected to alter radically now-accepted seismological theories and the allied concepts of building quake-proof structures, has been discovered by Dr. L. Don Leet, director of the Harvard University Seismograph Station.

In these warlike days the find is also expected to be of special military importance, since it will probably vitally affect the use of the seismograph in army artillery observation, which employs earth tremors as guides to the sites of heavy enemy guns. They are also used to check the accuracy of the army's own firing.

Both the discharge of a cannon and explosion of a shell start underground vibrations which can be traced on earthquake recording instruments.

The new wave-form was detected after a 10-year study of man-made earthquakes, touched off by high-power dynamite explosions.

Dr. Leet said the new type vibration, entirely unpredicted in earthquake theory, is the fifth fundamental type known to science.

The four forms previously known have been recognized for about 40 years, Dr. Leet said, and it was a bit surprising to find the new type, especially since in many types of explosion-shocks the new form is dominant, registering strongly on the instruments while the other four forms hardly leave their marks.

The new form is a sort of surface wave which travels through the upper 200 miles of the earth's crust, in contrast to the deeper waves which travel directly through the earth's core.

It is the third fastest of known earthquake waves. Those through the earth's center are the speediest and they impart a push-and-pull motion to particles in the path. Another internal wave, which shakes the particles from side to side of

the wave-path, is second-fastest.

Then comes the new wave, which drives particles at a diagonal to its path, followed by another surface wave, with a side-to-side motion, and finally, the slowest wave of all, a surface wave which drives the particles in a curious sort of elliptical rotation.

Dr. Leet has timed the new wave going about 2500 feet a second when set off by dynamite in sandy ground, but he pointed out that this speed might be considerably different under other conditions.

Thus far the new wave form has been observed only on dynamite-explosion records, not on natural quake-charts, but Dr. Leet said it is "almost certain" that it will eventually be found among natural tremors. In all other respects, he pointed out, natural and artificial quakes are similar.

An important problem arising from discovery of the new wave, and one which Dr. Leet is now investigating, is how much damage this new type of wave does. If it is mingled with the waves close to the sources of earthquakes, which cause heaviest damage, it may be necessary to change the design of quake-proof structures to withstand the ground conditions set up by the new wave.

*Science News Letter, October 21, 1939*

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## PUBLIC HEALTH

## Influenza Epidemics Are Predicted For 1940 and 1941

**A** MAJOR epidemic of influenza is predicted for February, 1941, with a "Phase 2 outbreak of some severity" likely to occur in February, 1940.

The two-phase theory of influenza occurrence on which these predictions are based has been developed by an English physician, Dr. J. H. D. Webster. It is brought to the attention of American physicians and health authorities through an editorial in the *Journal of the American Medical Association*. (Oct. 7)

Analyzing 'flu epidemic history for the past 49 years, Dr. Webster finds that Phase 1, accounting for influenza outbreaks every 33 weeks, is the major phase in the influenza cycle. Phase 2, the intermediate, covers outbreaks occurring about 16 weeks after Phase 1. This phase has led to a number of serious outbreaks such as those in February-March, 1924, January-March, 1932, and the first and third world epidemics of 1918-1919.

The usefulness of the theory "as an instrument of prophecy will receive practical trial in connection with the predicted epidemics of February, 1940, or February, 1941" the editor of the *A.M.A. Journal* comments, pointing out also that more studies are needed to clear up many points about the periodicity of outbreaks.

Reports of influenza cases from the entire nation during the three weeks ending September 30 received at the U. S. Public Health Service showed a slight increase in number of cases over the median for this period. For the week ending September 30 there were 525 cases. Health authorities do not place much significance on a rise in cases when the total number for the nation is still counted in the hundreds, and point out that last year at this time there were 800 cases reported for the last week in September. The number dropped to 474 during the week ending October 7.

*Science News Letter, October 21, 1939*

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